

ALAIN MORRIS

Backend & Applied AI Engineer

Belize / Remote (UTC-6)
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SUMMARY

Product-minded backend engineer with production and research experience across APIs, event-driven systems, robotics, simulation, data pipelines, and applied AI. Strongest in Python backend development, with end-to-end range across TypeScript interfaces, cloud delivery, observability, and operational workflows.

TECHNICAL SKILLS

Backend	Python, FastAPI, Flask, Node.js, REST APIs, PostgreSQL, MongoDB, Redis, SQL
Applied AI and data	LLM systems, RAG, contextual bandits, PyTorch, scikit-learn, Pandas, MLflow, simulation
Delivery	AWS, Docker, CI/CD, Linux, observability, React, Next.js, TypeScript

EXPERIENCE

Software Engineer & Solution Architect - Adaviv (MIT Spinoff)

Remote | Feb 2022-Feb 2024

- Built Flask backend control systems for Mantis, a field-deployed crop-scanning robot using RGB and thermal imaging.
- Implemented state-driven camera workflows, image capture, streaming, structured logging, error handling, and remote recovery paths.
- Integrated AWS services for media and production operations; optimized backend workflows to reduce latency by approximately 30%.

Graduate Researcher - Korea National University of Transportation

South Korea | Feb 2024-2026

- Designed a reproducible Demand Responsive Transit platform connecting scenario configuration, simulation, policy selection, passenger response, metrics, and MLflow.
- Completed 900 simulation runs across 45 scenario variants; verified results showed learning policies improving wait-time and service-rate direction over a greedy baseline.
- Built event-driven lifecycles, dispatch-policy interfaces, experiment orchestration, and analysis pipelines.

SELECTED ENGINEERING WORK

Healthbridge - Backend Engineer

Python | FastAPI | FHIR R4 | Redpanda | MongoDB

Built a public synthetic-data ingestion reference with OIDC/JWT authorization, asynchronous validation, idempotent persistence, retries, dead-letter handling, observability, tests, and CI.

Vireo Properties - Founder and Lead Engineer

Next.js | TypeScript | Postgres | Drizzle | GIS

Built and operate a live Belize property discovery and operations platform with real inventory, buyer qualification, CRM workflows, parcel geometry, provenance boundaries, and consent-aware measurement.

Mayawalk Staff Management - Full-Stack Engineer

React Native | Firebase | TypeScript

Digitized scheduling, employee check-in, shifts, and payroll support for a Belize tour operator, reducing reported accounting errors by approximately 40%.

KORAIL Reliability Research - Researcher

Python | Reliability Analysis | Monte Carlo Simulation

Normalized and analyzed 10,078 platform screen door failures across 279 stations and 18 lines to compare maintenance strategies.

EDUCATION AND CERTIFICATION

Master of Engineering, IT & Energy Convergence

Korea National University of Transportation | 2024-2026

Bachelor of Science, Information Technology - Magna Cum Laude

University of Belize | 2018-2022

AWS Certified Solutions Architect - Associate

Amazon Web Services